



# ICAO ENGINE EXHAUST EMISSIONS DATA SHEET

## SUBSONIC ENGINES

ENGINE IDENTIFICATION: CFM56-5B2/3 BYPASS RATIO: 5.5  
 UNIQUE ID NUMBER: 8CM053 PRESSURE RATIO ( $\pi_{00}$ ): 31.3  
 COMBUSTOR: Tech Insertion  
 ENGINE TYPE: TF RATED THRUST ( $F_{00}$ ) (kN): 137.9

REGULATORY DATA **\*\* DATA SUPERSEDED \*\*** SEE FOLLOWING UID FOR REVISED DATA: **01P08CM103**

CHARACTERISTIC VALUE:	HC	CO	NO <sub>x</sub>	SMOKE NUMBER
D <sub>p</sub> /F <sub>00</sub> (g/kN) or SN	1.9	38.2	48.2	17.1
AS % OF ORIGINAL LIMIT	9.5	32.4	47.0	78.9
AS % OF CAEP/2 LIMIT (NO <sub>x</sub> )			58.7	
AS % OF CAEP/4 LIMIT (NO <sub>x</sub> )			69.8	
AS % OF CAEP/6 LIMIT (NO <sub>x</sub> )			78.3	
AS % OF CAEP/8 LIMIT (NO <sub>x</sub> )			91.4	

### DATA STATUS

- PRE-REGULATION  
 x CERTIFICATION  
 - REVISED (SEE REMARKS)

### TEST ENGINE STATUS

x NEWLY MANUFACTURED ENGINES  
 - DEDICATED ENGINES TO PRODUCTION STANDARD  
 - OTHER (SEE REMARKS)

### EMISSIONS STATUS

x DATA CORRECTED TO REFERENCE  
 (ANNEX 16 VOLUME II)

### CURRENT ENGINE STATUS

(IN PRODUCTION, IN SERVICE UNLESS OTHERWISE NOTED)  
 - OUT OF PRODUCTION (DATE: - )  
 - OUT OF SERVICE (DATE: - )

### MEASURED DATA

MODE	POWER SETTING (%F <sub>00</sub> )	TIME (minutes)	FUEL FLOW (kg/s)	EMISSIONS INDICES (g/kg)			SMOKE NUMBER
				HC	CO	NO <sub>x</sub>	
TAKE-OFF	100	0.7	1.385	0.04	0.45	28.26	15.5
CLIMB OUT	85	2.2	1.107	0.02	0.23	20.76	13.1
APPROACH	30	4.0	0.358	0.05	2.33	9.42	2.1
IDLE	7	26.0	0.111	1.22	26.72	4.53	2.1
LTO TOTAL FUEL (kg) or EMISSIONS (g)			463	221	4870	6268	-
NUMBER OF ENGINES				3	3	3	3
NUMBER OF TESTS				7	7	7	7
AVERAGE D <sub>p</sub> /F <sub>00</sub> (g/kN) or AVERAGE SN (MAX)				1.6	35.3	45.5	15.5
SIGMA (D <sub>p</sub> /F <sub>00</sub> in g/kN, or SN)				0.3	2.1	0.8	5.7
RANGE (D <sub>p</sub> /F <sub>00</sub> in g/kN, or SN)				1.31-1.85	32.9-36.9	44.8-46.3	8.9-19.2

### ACCESSORY LOADS

POWER EXTRACTION 0 (kW) AT All POWER SETTINGS  
 STAGE BLEED 0 (% CORE FLOW) AT All POWER SETTINGS

### ATMOSPHERIC CONDITIONS

BAROMETER (kPa)	97.6-98.5
TEMPERATURE (K)	277-293
ABS HUMIDITY (kg/kg)	0.0015-0.00628

### FUEL

SPEC	Jet A
H/C	1.92-1.93
AROM (%)	16.2-17.5

MANUFACTURER: CFM International  
 TEST ORGANIZATION: General Electric Company  
 TEST LOCATION: PTO, Ohio  
 TEST DATES: 29/09/2005-23/03/2006

### NO<sub>x</sub> REGULATION PARAGRAPH

	2.3.2 c) (CAEP/4)
	2.3.2 d) (CAEP/6)
x	2.3.2 e) (CAEP/8)

### REMARKS

1. Ref. GE REPORT CR-2097/3 Rev1
2. Engine S/N 874-026/01, 778-024/01B, and 892-769/01
3. Certification in accordance with Part III, Chapter 2, of Amendment 7 of ICAO Annex 16 Vol. II.
4. NO<sub>x</sub> levels in accordance with Part III, Chapter 2, 2.3.2 e) (CAEP/8)

Compliance with Fuel Venting requirements: x ('x' if complies, 'PR' if pre-regulation, '-' if information is not available)